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Abstract

In order to contribute to the theoretical understanding of talent management, this paper aims to shed light on the meaning of the term ‘talent’ by answering the following question: Is talent predominantly an innate construct, is it mostly acquired, or does it result from the interaction between (specific levels of) nature and nurture components? Literature stemming from different disciplines has been reviewed to summarize the main arguments in support of each of the three perspectives. Subsequently, these arguments are mapped on a continuum ranging from completely innate to completely acquired. We argue that an organization’s position on this continuum entails important implications for its design of talent management practices, which we discuss extensively. By providing guidelines on how an organization’s talent management system can be shaped in accordance with their respective talent definition, this paper is particularly useful to HR practitioners.

Keywords: talent management, nature, nature-nurture interaction, nurture

Talent—Innate or Acquired? Theoretical Considerations and Their Implications for Talent Management

Organizations worldwide are facing the challenge of managing talent effectively. In light of the current economic downturn and volatile market environments, talent management has become an ever more important tool to gain a sustained competitive advantage through human capital (Collings & Mellahi, 2009; Tarique & Schuler, 2010). Despite its importance, recent research by practitioner-oriented institutions such as The Chartered Institute of Personnel and Development (CIPD) has found that only a small percentage of organizations (6 percent) consider their talent management systems to be very effective (CIPD, 2012). One reason for this lack of effectiveness might be the sparse theoretical and empirical knowledge base that talent management draws upon. Reviews of the academic literature on talent management have concluded that the research field still misses stringent definitions, theoretical frameworks, and empirically based recommendations for use in practice (Collings & Mellahi, 2009; Lewis & Heckman, 2006). The basic question, "What is talent?" has been left unanswered, and this appears to be the crux of the conceptual obscurity within the talent management field (Reilly, 2008). On that account, we reason that in-depth theoretical work on the nature of talent is needed to dissolve the conceptual ambiguities regarding talent management and, eventually, to make talent management more effective in practice.

The article at hand is among the first to address this need for theoretical work on the topic of talent. More specifically, it focuses on the extent to which talent is conceptualized as an innate versus an acquired construct (cf. Tansley, 2011), and this focus is important for three reasons. First, scholars who investigate talent or talent-related constructs still disagree as to whether talent is mainly determined by innate factors or by learning opportunities (Dai, 2009; Dai & Coleman, 2005; Howe, Davidson, & Sloboda, 1998). Although most scholars agree that talent comprises both innate and acquired components, they differ greatly in the

extent to which they ascribe importance to either one component or the other (Walker, Nordin-Bates, & Redding, 2010). Conventional definitions of talent used by those scholars can therefore be placed on a continuum ranging from completely innate to completely acquired, but such a continuum still needs to be described. Second, we argue that the position of talent on the innate-acquired continuum has important implications for talent management in practice and can solve some of the ambiguities that still characterize the field. One of the most prevalent ambiguities, for instance, refers to how 'exclusive' talent management should be (Iles, Preece, & Chuai, 2010; Lewis & Heckman, 2006). While many scholars have a strong preference for exclusive talent management approaches, which are directed at a small, elitist percentage of the workforce only—the high potential, highly performing, or strategically important employees (Boudreau & Ramstad, 2005; Collings & Mellahi, 2009) —others are in favor of more inclusive talent management approaches that are directed at the whole workforce (Buckingham & Vosburgh, 2001; Yost & Chang, 2009). Choosing either one of these approaches might be easier when keeping in mind that the assumption of innate talent also holds that a few employees are endowed with certain qualities while others are not. In contrast, defining talent as mainly acquired implies that any person can become an excellent performer in almost any field. Consequently, defining talent as rather innate implies exclusive talent management practices, while defining talent as mainly acquired calls for rather inclusive approaches to talent management. Third, we propose that the definition of talent as mainly innate or mainly acquired has many further-reaching consequences for the acquisition, identification, and development of talent in organizations. When assuming that talent is innate, for instance, talent management might focus much more on the identification and recruitment of talented employees than on their development. When assuming that talent can be developed, in contrast, talent management might have a strong focus on the training

and development of employees, and selection decisions might be based on applicants' prior learning experiences.

In summary, this article serves two purposes. First, it aims to deepen the theoretical understanding of the concept of talent by providing a systematic overview of scholarly work dealing with the nature of talent. This work will be arranged according to its respective position on the previously proposed innate-acquired continuum. In doing so, this article represents an important contribution to the theoretical literature on talent management and a sound basis for future theoretical and empirical work. Second, it seeks to illustrate the implications of considering talent as rather innate or acquired for talent management in practice. Thereby, this article provides important practical guidelines that facilitate the compilation of more effective talent management systems.

What is Talent? Historical and Theoretical Perspectives

The term "talent" dates back to the ancient world (from Greek *talanton*; Latin *talenta*) where it was used to denote a unit of weight or money ("Talent," n.d.a; Tansley, 2011). Subsequently, the meaning of talent underwent a considerable change, standing for an inclination, disposition, will, or desire by the 13th century ("Talent," n.d.a). In the 14th century, talent then adopted the meaning of a special natural ability or aptitude, which was probably based on figurative interpretations of the Parable of the Talents (Matthew 25:14–30) ("Talent," n.d.a). The subtext of this parable conveys that talents—whether they are interpreted as monetary units or natural abilities—are valuable and should not be wasted, and this moral still applies today.

In today's dictionary, talent is defined as "a natural ability to be good at something, especially without being taught" ("Talent," n.d.b). This definition implies that talent is innate and still bears strong resemblance to the meaning of talent in the late middle ages. Even though the apparent meaning of talent has been constant for several centuries, there are many

latent uncertainties about it. If you asked lay people whether they considered Einstein talented, for instance, they would most likely answer in the affirmative. Einstein himself, however, stated the following:"I know quite certainly that I myself have no special talent; curiosity, obsession and dogged endurance, combined with self-criticism, have brought me to my ideas" (Albert Einstein, quoted in Mih, 2000, p. 4). Similarly, the understanding of the term talent in the context of talent management also varies greatly (see also Dries, this issue; Gallardo-Gallardo, Dries, & González-Cruz, this issue): One finds, for instance, conceptualizations of talent as high potential, as high leadership ability, or as competency. Even studies that investigate talent management approaches of similar organizations emphasize different factors that are considered for talent identification. In some multinational corporations (MNCs), for example, talent identification depends on factors such as performance ratings (Mäkelä, Björkman, & Ehrnrooth, 2010). In other MNCs, by contrast, talent identification depends on cultural fit and employees' values (Stahl et al., 2012).

In many other studies in the field of talent management, authors have handled the concept of talent as if it was commonly understood; that is, they have not further specified its meaning at all (Reilly, 2008). The aim of this paper is to gain insight into the specific nature of talent. To this end, we conducted an online literature search limited to articles that have the word "talent" in their title and that were published in peer-reviewed journals. This search resulted in 1023 publications in total (PsychINFO = 631; ABI/Inform = 392), which differ greatly in terms of their theoretical background. While some publications have a background in strategic human resource management (SHRM), others are rooted in the field of education, with a more specific focus on the identification and development of talented students in schools (Abbott, Collins, Martindale, & Sowerby, 2002; Walker et al., 2010; Walker & LaRocco, 2002). Other publications again belong to the emerging field of positive psychology and focus on individual character strengths and virtues (e.g., Buckingham &

Vosburgh, 2001). Even though these literature streams do not always relate to human resource management (HRM), they have generated in-depth considerations on the nature of talent (see also Dries, this issue), which has allowed us to gain new and helpful insights into the topic.

Important Theoretical Approaches to Talent

In the following sections, we will provide a short description of the five most salient approaches to talent within the different literature streams we examined: Talent seen as giftedness, individual strength, (meta-) competency, high potential, and high performance. An overview of the approaches can be found in Table 1. Out of those five approaches, only the latter three are specifically related to the working context; the former two have been studied in diverse contexts.

— Insert Table 1 about here —

Talent as giftedness. Literature on giftedness mainly falls under the research domain of education and deals with individuals who achieve outstanding performance levels in sports, music, mathematics, physics, chess, arts, general memory tasks, and other domains. Those individuals are commonly said to possess extraordinary talents or special gifts that allow them to display outstanding skills in a specific domain (Vinkhuyzen, van der Sluis, Posthuma, & Boomsma, 2009). Giftedness is assumed to be rare, and only very accomplished individuals like Mozart have been mentioned as displaying true giftedness. The majority of giftedness research is conducted with children or adolescents and seeks to explain why giftedness emerges (at early ages) and how the education of gifted children can be amended. In comparison to the other literature streams presented in the following sections, the research field of giftedness stands out due to its sound theoretical basis consisting of several well-known models and frameworks. However, there is no consent amongst giftedness researchers about the concrete meaning of the term (Passow, Mönks, & Heller, 1993; Stoeger, 2009) and

the extent to which extraordinary proficiency in a field is innate or acquired (Howe et al., 1998).

Talent as strength. Literature on strengths belongs to the recently emerging scientific field of positive psychology defined as the "science of positive subjective experience, positive individual traits, and positive institutions" (Seligman & Csikszentmihalyi, 2000, p. 5). Strengths have been defined as "potentials for excellence" (Biswas-Diener, Kashdan, & Minhas, 2011, p. 106) and "characteristics of a person that allow them to perform well or at their personal best" (Wood, Linley, Maltby, Kashdan, & Hurling, 2011, p. 15). They are usually conceptualized as trait-like constructs that are partly innate but can be developed to some extent (Biswas-Diener et al., 2011). Examples of strengths according to an established classification by Peterson and Seligman (2004) are creativity, kindness, prudence, gratitude, and justice. It is said that every individual possesses certain strengths and that the use thereof is accompanied by positive feelings such as invigoration, high energy, intrinsic motivation, authenticity, and self-fulfillment (Peterson & Seligman, 2004). Due to those positive effects, interventions to identify, develop, and use strengths are studied in diverse contexts such as schools, organizations, and health care, rehabilitation, and therapeutic institutions.

Talent as (meta-) competencies. Hoge, Tondora, and Marrelli (2005) defined a competency as "a measurable human capability required for effective performance" (p. 511). Competencies are referred to as behavioral manifestations of talent (Boyatzis, 2008), and they are commonly assessed in the context of leadership development, promotion decisions, and succession planning (Campion et al., 2011). Competencies consist of the building blocks knowledge, skills, abilities, and personal or other characteristics (Campion et al., 2011; Hoge et al., 2005). It has been proposed that knowledge and skills can be developed by most people, while abilities and personal characteristics are rather stable. On a more abstract level,

researchers have argued that the acquisition of competencies gets influenced by powerful, higher-level competencies, referred to as meta-competencies (Briscoe & Hall, 1999). Meta-competencies are constructs that facilitate individual learning, adaptability, and development; are required in a variety of jobs; and maintain their value even when drastic environmental changes occur (Briscoe & Hall, 1999; Lo Presti, 2009). Examples of meta-competencies are general intelligence (Schmidt & Hunter, 2000), learning agility (Briscoe & Hall, 1999; Lo Presti, 2009; Spreitzer, McCall, & Mahoney, 1997), and emotional intelligence (Dries & Pepermans, 2007).

Talent as high potential. Potential is a commonly used term in the context of talent management and strategic HRM because it has sparked the curiosity of organizations and consulting firms equally (Silzer & Church, 2009b). Although the term is now widely used in the corporate world, however, grasping its concrete meaning is challenging, as is clearly defining it (Karaevli & Hall, 2003; Silzer & Church, 2009a). Potential denotes "the possibility that individuals can become something more than what they currently are" (Silzer & Church, 2009a), meaning that it is latent or not yet visible (Altman, 1997; Yost & Chang, 2009). This implies that potential has a partly innate basis but has to be developed to become manifest in outstanding performance. In general, potential is considered a scarce individual feature: Only a small percentage of the workforce commonly gets identified as having high potential (Ulrich & Smallwood, 2012).

Talent as high performance. In contrast to the perspective that talent denotes potential or possibilities for the future, talent can also be understood as a construct that becomes manifest in present actions and behaviors, or, in short, performance (Altman, 1997). Talent in this regard is defined by realized outputs, and not, as in other approaches to talent, by the inputs that are necessary to achieve a certain output (e.g., knowledge, skills, and abilities). Since performance outputs can be measured more easily than input factors like

potential, it is a common organizational practice to use performance appraisals for the purpose of talent identification (Dries & Pepermans, 2008). Moreover, the importance of employee performance has been demonstrated within literature on forced ranking approaches in which the relative best performers are extensively rewarded whereas the relative worst performers are laid off (Grote, 2005; Welch & Welch, 2005). In general, the notion of performance appraisal for talent identification can be found throughout the diverse literature streams that we have described in the previous sections because most acknowledge that talent becomes manifest in performance (e.g., Subotnik, Olszewski-Kubilius, & Worrell, 2011).

Main Arguments Supporting Different Perspectives on the Nature of Talent

After having identified the literature streams dealing with talent, we searched them for common arguments supporting the notions that talent is either mainly innate, mainly acquired, or the result of nature-nurture interactions. We placed those arguments on a continuum ranging from innate to acquired talent, and a graphic representation of this continuum can be found in Figure 1.

— Insert Figure 1 about here —

Main Arguments Supporting the Nature Perspective

In this section, we will present theories and evidence by researchers who advocate for the innate nature of talent. Note, however, that none of these authors completely neglects the role of practice and development in becoming an excellent performer in a given domain. They mainly state that innate talent is a necessary (but not a sufficient) condition for reaching exceptional performance levels. In the following paragraphs, we will summarize some of the main arguments in support of the assumption that talent is (at least partly) innate. We ordered those arguments in such a way that the arguments placing the greatest emphasis on innate features are discussed first.

High talent means high intelligence and this is proven to be genetically determined. Lewis Terman, the first scholar who conducted extensive longitudinal studies on gifted children and their development, linked talent to intelligence in an inextricable way by defining giftedness as belonging to the top one percent of intelligent children (1925; Terman & Oden, 1959). More recent talent definitions often include multiple factors that contribute to superior performance, but intelligence is usually one of them. It has, for instance, been proposed and confirmed by preliminary evidence that general intelligence, domain specific skills (e.g., musicality), and practice are prerequisites for achieving exceptional performance levels (Detterman & Ruthsatz, 1999; Ruthsatz, Detterman, Griscom, & Cirullo, 2008). As intelligence appears to be an important talent component, and as heritability indexes for intelligence range between .60 and .80 (Bouchard, 1998)**,** one can argue that talent needs to be at least partly innate. Given those high heritability indexes, this argument can be found on the far left side of the continuum in Figure 1.

The link between intelligence and talent—as manifested in high performance—has also been put forward by literature related to the working environment. In particular, this literature reports that either intelligence or general cognitive ability commonly gets assessed during hiring processes, for promotion decisions, and for executive development (Briscoe & Hall, 1999; McLagan, 1997). The reason for assessing intelligence within these contexts is the close link between intelligence and work performance. Meta-analytic findings reveal that general intelligence is the most valid predictor of future job performance for a broad variety of jobs and job levels (Schmidt & Hunter, 1998, 2000, 2004).

There are children who demonstrate exceptional abilities in certain domains at very young ages. A common argument for the existence of innate talent stems from the field of giftedness research and refers to child prodigies. Child prodigies have been defined as "children under 10 years of age who perform culturally relevant tasks at a level that is rare

even among highly trained professional adults in their field" (Ruthsatz & Detterman, 2003, p. 509). As those children display exceptional abilities at an extremely early age—an age that naturally limits the hours of training and practice that they could possibly have accumulated—innate talent must at least partly account for their early achievements (Feldman & Katzir, 1998). One of the most famous prodigies is Wolfgang Amadeus Mozart who, according to anecdotal evidence, composed his first piece of music at age four (Abbott et al., 2002). Over the course of time, researchers have gathered many cases and examples of prodigies in diverse fields of expertise. Amongst them we find the chess grandmaster Bobby Fisher who, at the age of seven, was not interested in other children unless they played chess (Brady, 1989) and the autistic girl Nadia who produced drawings of horses in her early childhood, demonstrating that her ability to draw was many years ahead of her age (Selfe, 1977; Winner & Drake, in press). An example of one of the drawings that she produced at the age of five is displayed in Figure 2.

In summary, this argument describes innate factors as the main determinants of talent, while it also acknowledges the importance of practice and training. Therefore, this argument has been placed in between the innate end and the center of the continuum in Figure 1.

— Insert Figure 2 about here —

There are very few exceptional performers. The rare occurrence of talent has been illustrated within the literature on giftedness and work performance. Giftedness scholars argue that the number of gifted people is quite restricted, with estimated percentages ranging from one (Terman, 1925) to 10 percent (Gagné, 2004) of people (compared to persons of the same age). These low percentages led giftedness scholars to reason that nurture does not play a major role in the formation of talent. Protzko and Kaufman (2010) elucidated this line of reasoning: In general, many ambitious parents enable and encourage their children's development in diverse domains, but there are many more ambitious parents than prodigies.

This connotes that a nurturing environment cannot account for much variance in talent, but innate factors can.

Work performance literature also promotes the idea that only few employees are capable of high performance. In today's organizations, considerable efforts are undertaken to identify employees with high performance, high potential, or talent. Performance appraisal, for example, is one of the most widely applied human resources (HR) practices (Guest, Conway, & Dewe, 2004). Based on this appraisal, companies differentiate between A, B, and C players; top, average, and bottom performers; or high potential versus average employees (e.g. Axelrod, Handfield-Jones, & Michaels, 2002). Ulrich and Smallwood (2012) estimated that only 10–15 percent of employees are high potentials. Similarly, only 20 percent of the workforce are typically classified as A players, 70 percent as B players, and 10 percent as C players (Welch & Welch, 2005). The latter 20-70-10 rule is often used in combination with a forced ranking approach in which an employee's performance is evaluated in relation to the performance of his or her peers (Grote, 2005; Welch & Welch, 2005). Usually, such an approach results in high rewards for the top 20 percent of the workforce and contract terminations for the bottom 10 percent who have to leave to make more room for talent (Grote, 2005). The aforementioned norms or rules of thumb about the relatively rare occurrence of talent in organizations are also prevalent in the perceptions of employees with high-potential themselves and other organizational representatives; both groups indicate that they see high-potential employees as a small and elite part of the general workforce (Dries & Pepermans, 2008).

Just as the previous argument, this approach is placed between the innate end and the center of the continuum in Figure 1 because innate factors are seen as the main determinants of talent, while the facilitating role of training is not completely neglected.

Even with the same amount of training, certain people will always outperform others. More than a century ago, Sir Francis Galton (1869) proposed that training can only enhance the an individual's mental as well as physical capacity to a certain, predetermined degree. According to him, nature sets limits on the maximum performance that can be achieved through training (Galton, 1869). As an example, Galton describes the final examinations of mathematicians at Cambridge. They take place after three years of study or, in other words, three years of equal training for everyone. Nevertheless, the performance differences between the mathematicians are striking: The best mathematician can gain twice as many points as the second best mathematician and up to 30 times as many points as the lowest ranking mathematician (Galton, 1869).

In more recent literature on giftedness, we find comparable assumptions about an innate factor that sets limits on the ease, speed, or rate of individual learning. In this regard, the definition of talent as "an innate ability or proclivity to learn in a particular domain" (Winner & Drake, in press) can be mentioned as an example. This definition implies that talented individuals will learn at a faster rate in the domain of their talent than their non-talented peers. Giftedness literature also provides evidence for the assumption of an innate factor that facilitates learning: Studies reveal that there are substantial differences in the amount of practice that chess players need before they achieve the master or grandmaster level (Gobet & Campitelli, 2007; Howard, 2008).

Individual differences in the proclivity to learn have also been acknowledged by scholars who investigate talent in the organizational context, particularly scholars who investigate meta-competencies. By definition, all meta-competencies facilitate the acquisition of other competencies (Briscoe & Hall, 1999). However, learning agility is the meta-competency that is most commonly mentioned in the context of learning. Learning agility has been defined as an individual's "willingness and ability to learn new competencies in order to

perform under first time, tough, or different conditions" (Lombardo & Eichinger, 2000, p. 323). People differ considerably in their level of learning agility (Lombardo & Eichinger, 2000), and differences in learning agility have often been highlighted as valid predictors of individual career success (Eichinger & Lombardo, 2004; Lombardo & Eichinger, 2000; Spreitzer et al., 1997). Beyond, learning agility is considered to be a crucial feature of successful leaders because it allows them to react adequately to today's highly dynamic business environments (Spreitzer et al., 1997).

In summary, the above-mentioned literature frankly acknowledges the capacity of training to enhance performance, but it states at the same time that this enhancing capacity is limited by innate features. Therefore, this argument is placed closer to the center of the innate-acquired continuum than the previous arguments (Figure 1).

Main Arguments Supporting the Nurture Perspective

In this section, the central arguments in favor of talent acquisition will be presented. Just as advocates of innate talent do not completely deny the effect of practice, proponents of talent acquisition do not completely repudiate the notion of certain innate factors impacting ultimate performance levels. However, they still consider training, development, and experience to be the main reasons for achieving excellent performance. According to these scholars, variance in talent is explained by nurture for more than 50 percent. Once more, we will start with those arguments that take the most extreme position on the innate-acquired continuum in Figure 1, meaning that they attribute talent mainly to nurture.

Deliberate practice is the single most important predictor of performance. Several giftedness researchers have claimed that there is not a single individual who has ever reached an excellent performance level in mathematics, chess, music, or sports without practicing for thousands of hours (Howe et al., 1998). For instance, 10 years of training is required before chess players reach the grandmaster level (Simon & Chase, 1973). Therefore,

many researchers argue for training and practice as main determinants of talent (e.g. Ericsson, 2007; Ericsson & Charness, 1994; Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson, Nandagopal, & Roring, 2009; Howe et al., 1998; Sloboda, Davidson, Howe, & Moore, 1996). In particular, the role of deliberate practice, defined as "practice that (1) is primarily directed at performance improvement, (2) is of adequate difficulty, (3) involves informative feedback, and (4) provides ample opportunity for repetition and correction of errors" (de Bruin, Smits, Rikers, & Schmidt, 2008, p. 474), has been stressed. According to Ericsson et al. (1993), the amount of time that an individual engages in deliberate practice is monotonically related to his or her performance (i.e., monotonic benefits assumption). Several studies corroborate this proposition. The amount of practice has been found to account for the achievements of, for instance, musicians (Ericsson et al., 1993; Sloboda et al., 1996), soccer and field hockey players (Helsen, Starkes, & Hodges, 1998), chess players (de Bruin et al., 2008), and everyday typists (Keith & Ericsson, 2007).

Building on the work of Ericsson and his colleagues, the importance of deliberate practice has also been stressed by organizational researchers. Day (2010) recently argued that deliberate practice has often been overlooked as an important factor for the development of leadership talent. Management guru Geoff Colvin (2010) has even published a book in which he claims that everyone can become a top performer like Jack Welsh if he only invests sufficient time in deliberate practice.

In summary, since it has explicitly been stated by Ericsson, Prietula, and Cokely (2007) that no innate factors except for height and body size influence performance, this argument is placed very close to the acquired end of the continuum in Figure 1.

Talent evolves from (early) experience. Advocates of nurture as the cornerstone of talent claim that early ability alone is not a proof of innate talent, at least if the possibility of learning opportunities cannot be ruled out (Howe et al., 1998). Within the literature on

giftedness, it has been proposed that child prodigies are merely the result of their early experiences. In other words, there is doubt as to whether presumed child prodigies would have excelled without the special opportunities and encouragement they received during childhood (Howe, 1999; Howe et al., 1998). It is, for example, known that Mozart's father was an ambitious musician who dedicated a lot of time and energy to the musical education of his two children (Therivel, 1998). Thus, Mozart was provided with numerous learning experiences from a very early age. Giftedness scholars argue that these unique learning experiences account for the extreme musicality Mozart displayed during childhood and for his tremendous performance as a composer in his later years. Empirical evidence for this claim can be found in a study by Davidson, Howe, Moore, and Sloboda (1996). The authors found that the best students, those who displayed the greatest mastery of a musical instrument, had parents who were highly supportive of the musical education of their children.

The importance of gaining experience has also been stressed in literature on (leadership) potential. McCall (1994, 1998), for instance, considered learning from experiences indispensable for attaining the necessary competencies that qualify a future leader. Talent, in his opinion, is the ability to learn as much as possible from the experiences that are offered. In this regard, talented individuals possess a specific set of characteristics: actively looking for learning experiences, trying to gain a broad understanding of management, considering problems from new perspectives, taking risks, seeking feedback, and learning from mistakes, among others (McCall, 1998). Empirical evidence in support of this perspective can be found in studies on leader derailment and leader success. First, it has been revealed that employees who solely rely on those skills they already have instead of learning new ones are more likely to fail in later career stages (McCall & Lombardo, 1983). Second, Arvey, Rotundo, Johnson, Zhang, and McGue (2006) found that 30 percent of the variance in leadership role occupancy was explained by genetic factors (latent potential),

whereas the lion's share of variance (70 percent) was explained by environmental influences (experiences, training).

In summary, this argument implies that nurture has a much heavier weight than nature when it comes to explaining talent, but it also implies that some innate factors might be conducive to learning from experience. Therefore, this argument is placed in between the acquired end of the continuum and the center (Figure 1).

Almost everyone can become a 'prodigy.' The behaviorist John B. Watson once argued that he could transform any healthy child into an expert in any field of proficiency, if he only had the possibility to raise them in his own specified environments (Watson, 1924). On a related note, researchers have argued that many parents might be able to 'produce' a child prodigy if they are willing and capable to dedicate sufficient energy to their child's education (Howe, 1990). An often cited example for this supposition is the Ospedale della Pietà, an orphanage in 18th century Venice (Abbott et al., 2002; Sloboda, Davidson, & Howe, 1999). At that time, orphans at this institution received a profound education in music and were taught by Antonio Vivaldi, amongst others. As a result, the institution brought forth a disproportionally high number of accomplished musicians and composers, which is unusual given the rare occurrence of accomplished musicians in the general population (Abbott et al., 2002; Sloboda et al., 1999). Empirical evidence for the assumption that everyone can become a prodigy can be derived from a number of studies conducted by Allan Snyder (2009). Based on the assumption that everyone has latent savant skills, he used low-frequency repetitive transcranial magnetic stimulation of the brain to artificially induce savant skills in study participants. His studies showed that this technique can temporarily enhance drawing and proofreading skills (Snyder et al., 2003) as well as numerosity (Snyder, Bahramali, Hawker, & Mitchell, 2006) in some, but not all, of his otherwise normal participants.

The notion that people can be developed to improve their performance is also prevailing in literature on potential. In today's organizations, people with potential are habitually trained for more advanced positions or for long-term future performance (Silzer & Church, 2010). Yost and Chang (2009) went so far as to claim that any employee can be developed into an excellent performer. The only prerequisite is that the organization facilitates the realization of individual potential by finding a position where employees can play to their strengths and by teaching them how to develop themselves.

Again, this argument makes a strong case for the importance of nurture in the development of expert performance. However, empirical evidence shows that it might be too strong a claim to suggest that everyone can become a prodigy. In addition, the issue of fit between individual characteristics and the environment is addressed (Yost & Chang, 2009). Therefore, this argument is placed in between the acquired end of the continuum in Figure 1 and its center.

Arguments Supporting Nature-Nurture Interactions

Many recent theories of giftedness and talent reason that talent is formed through interactions between nature and environment, but they fail to specify the exact amount to which each of them contributes (e.g. Abbott et al., 2002; Gagné, 2004, 2010; Renzulli, 2005; Vinkhuyzen et al., 2009). Csikszentmihalyi (1998) summarized this idea by stating that "talent is not an all-or-nothing gift but a potential that needs to be cultivated to bear fruit" (p. 411). Several thoughts and theories brought forward by advocates of nature-nurture interactions as the basis of talent are discussed below. Since all the arguments support the notion of nature-nurture interactions, and therefore stress the importance of both innate and acquired talent, they are all placed at the center of the continuum in Figure 1.

Innate features are necessary but not sufficient conditions for future achievements. Several researchers have differentiated between a given innate talent on the

one hand and, on the other hand, acquired talent that is displayed by experts and that can only be obtained through arduous practice (Clifton & Harter, 2003; Gagné, 2004). Both concepts are related to one another in that acquired talent always builds on innate talent. In order to make the differentiation between the two constructs more obvious, researchers have introduced different terms for both. The giftedness researcher Francoys Gagné (2004, 2010), for instance, used the term *giftedness* to refer to the possession of special innate abilities (gifts), and the term *talent* to denote "the outstanding mastery of systematically developed abilities (or skills) and knowledge in at least one field of human activity" (Gagné, 2004, p. 120). In the framework of his differentiated model of giftedness and talent (DMGT), Gagné (2004) furthermore specified that talents are built by enhancing innate gifts through learning and training. This process of transforming gifts into talent is called the developmental process. If the developmental process does not take place, innate gifts are wasted; they do not become manifest in excellent performance (Gagné, 2004). In other words, the DMGT implies that an individual can be gifted without being talented (she is extraordinarily musical, but she never became a successful musician because she never learned to play an instrument), but not the other way around (an unmusical person will never become a successful musician).

The general ideas of the DMGT about the interplay between innate and developed features of talent can also be found in other seminal models in the field of giftedness. In the framework of his wisdom, intelligence, creativity synthesized (WICS) model of giftedness, Sternberg defined giftedness as "expertise in development" (2003, p. 109). This definition implies that initial gifts have to be developed in order to evolve into exceptional performance or expertise (Sternberg, 2003, 2005). Similarly, the three-ring conception of giftedness (Renzulli, 2005, 2012) holds that some individuals have the potential to display gifted behavior (exceptional performance), while others do not. Individual potential is determined by the three factors (three rings) of above average ability, high task commitment, and high

creativity. These factors are said to emerge from interactions between the person and the environment (Renzulli, 2005). A person who has potential, however, does not necessarily become a gifted performer. Therefore, Renzulli (2005) argued that educators have to stimulate the transformation of potential into excellent performance.

Similar arguments suggesting that both innate factors and development shape talent can be found in the literature on employee (high) potential. Potential denotes "the possibility that individuals can become something more than what they currently are" (Silzer & Church, 2009a, p. 379). This means that potential is a latent (not readily observable) factor that influences future developments (Altman, 1997; Yost & Chang, 2009). Potential is seen as a necessary precondition of future success, but it can only be fully realized if the potential is discovered, grown, and developed (Silzer & Church, 2009a). This implies that potential probably has an innate basis, which is necessary but not in itself sufficient to become efficient in a future organizational role. It has been argued that innate potential probably is the factor that sets the context or builds the framework for future developments (Altman, 1997).

Empirical evidence for the importance of both innate and acquired components of talent was delivered by Ruthsatz et al. (2008). The researchers found out that the combination of innate factors (i.e., general intelligence plus musical audiation) and accumulated practice accounted for more variance in musical performance than practice alone. Vinkhuyzen et al. (2009) conducted a twin study and found a considerable genetic contribution to talent and ability, although they acknowledged that practice is indispensable to perform at an extraordinary level.

Environmental factors exert influence, but they influence different persons in different ways. Several researchers have taken interest in the question of how genes and environment interact to shape manifest features or behaviors (Bronfenbrenner & Ceci, 1993; Papierno, Ceci, Makel, & Williams, 2005; Schmitt, Eid, & Maes, 2003). It has been argued

that personal (e.g., personality traits) and environmental factors (e.g., education) do not simply add to one another; instead, one factor can amplify the effects of the other (Bronfenbrenner & Ceci, 1993; Papierno et al., 2005). In other words, the overall effect of person and environmental factors combined is bigger than the sum of their unique effects. This phenomenon has been referred to as the multiplier effect (Ceci, Barnett, & Kanaya, 2003) and the synergistic effect (Schmitt et al., 2003). The occurrence of such effects has, amongst others, been explained by selective attention and different thresholds for perceiving cues; by attitudes and values that motivate a person to emphasize information that is value-congruent and ignore information that is not; and by memory biases that result from differences in the depth of information processing (Schmitt et al., 2003).

Papierno et al. (2005) proposed that the emergence of exceptional abilities or talent can be explained by such multiplicative person-environment interactions or multiplier effects. Multiplier effects imply that small initial inputs from either the person or the environment can set into motion a chain of person-environment interactions that result in significant gains in a measurable outcome (Ceci et al., 2003). Consider a very creative and artistic girl as an example: As she likes to do creative work, she puts more effort into her paintings than her classmates at primary school. Her teacher appreciates her efforts and compliments her on her work. The encouraging words motivate the girl to further improve her paintings. She spends much of her free time on creative tasks so that her parents notice the continuous improvement of her drawings. They decide to send her to extracurricular art classes, where she further improves her technique. Eventually, she is accepted to art school because her drawings reflect a much higher level of expertise than the drawings of her same-age peers.

In order to explain why some individuals can develop into extraordinary performers and far surpass ordinary people, Papierno et al. (2005) furthermore refer to the Matthew effect. The Matthew effect owes its name to the biblical passage, “For to everyone who has,

more shall be given, and he will have an abundance; but from the one who does not have, even what he does have shall be taken away" (Matthew, 25:29). This implies that individuals who possess a great deal (e.g., in terms of resources, abilities, health) will amplify their possessions to a disproportional extent as compared to individuals who possess much less. Therefore, the Matthew effect helps to explain why initial, linear differences between people or environments will not result in linear differences in outcomes (Papierno et al., 2005). Put simply, this means that a given level of initial environmental stimulation (e.g., piano lessons) can lead to high ability gains of a person who disposes of a strong genetic predisposition to respond to this stimulation (e.g., musicality) and, in the most extreme case, to no ability gains of a person with a slightly lower genetic predisposition.

Taken together, Papierno et al. (2005) argue that the emergence of talent strongly depends on minor genetic or environmental inputs and the chain of person-environment interactions they trigger. Moreover, the initial inputs play a decisive role because they limit the maximum performance level that an individual can eventually achieve.

Talents are dependent on several contextual and individual factors. The argument that talent cannot be disentangled from contextual and individual variables (Abbott & Collins, 2004; Abbott et al., 2002; Biswas-Diener et al., 2011) partly builds on and overlaps with the argument that specific innate talent factors will only result in superior performance if they are developed or refined. This implies that initial talent or innate potential can be wasted if the context is not conducive to its development and/or if certain individual factors are lacking (Abbott & Collins, 2004; Biswas-Diener et al., 2011). Abbot and Collins (2004) specified that facilitating contextual factors comprise parental support, adequate training facilities, and effective coaching, whereas facilitating individual factors include motivation and adequate learning strategies. Moreover, instead of only claiming that interactions between individual and environmental factors are necessary conditions for talent to emerge, it has also been

argued that those interactions shape the specific manifestation of a talent. As an extreme example, Mozart may have developed into an Olympic rower if he had grown up in another context (Abbott et al., 2002).

Following this line of reasoning, strengths researchers have argued that strengths are not stable across time and situations like pure traits, but that they are highly dependent on contextual factors, personal values, interests, and other strengths (Biswas-Diener et al., 2011). It implies that the same strength can become manifest in multiple ways when owned by different individuals (Biswas-Diener et al., 2011). The strength 'bravery', for instance, might lead a person to become a firefighter, but just as well a high-altitude construction worker. The choice to become a firefighter then depends upon contextual factors (e.g., several family members are firefighters), personal values (e.g., serving the community), interests (e.g., adventures), other strengths (e.g., zest, optimism), or a combination of several of them.

Furthermore, strengths cannot be considered in isolation because the appropriateness or relevance of using a certain strength depends on contextual or situational factors (Biswas-Diener et al., 2011; Schwartz & Sharpe, 2006). Contrary to the general view that using strengths more is always better, several researchers have recently highlighted the possibility that overusing strengths could be harmful under certain circumstances (Biswas-Diener et al., 2011; Kaiser & Overfield, 2011; Schwartz & Sharpe, 2006). When changing work roles, for instance, it is often necessary to use different strengths or to use a particular strength to either a greater or lesser extent (Biswas-Diener et al., 2011). In particular, Kaiser and Overfield (2011) highlighted the tendency of leaders to use their strengths too much while neglecting behaviors that counter their natural talents. This eventually leads to lopsided leadership. Assertiveness, for instance, is generally desirable for a leader, but can lead to a demoralization of employees and performance drops if it is used excessively (Ames & Flynn, 2007; Kaiser & Overfield, 2011).

Talent in one domain can be transferred to other domains through special training (deliberate programming). Case studies in the field of sports have recently stressed the potential benefits of a new approach to talent identification and development. This approach is labeled talent transfer and is based on the assumption that talent is innate and that the talent pool is limited. At the same time, talent is understood as a resource that can be refined through training and applied in different domains (Bullock et al., 2009). In particular, talent transfer implies that senior athletes in a given sport A are assessed against certain prerequisites for sport B that is new to them. Selected candidates can become experts in the targeted sport B in a relatively short period of time (fast-tracking) if they are provided with extensive, high-quality training, the possibility to participate in competitions, and all other necessary resources (Bullock et al., 2009). Examples include athletes who switch from speed skating to road cycling, from gymnastics to diving, from sprinting to bobsled, and from weightlifting to shot-put (Gulbin, 2008). Bullock et al. (2009) described an extensive case study in which female athletes were developed into successful skeleton (sliding sport) athletes. The athletes were initially successful in sports such as track athletics and disposed of particular required capabilities for skeleton (e.g., fast sprinters). These study results provide support for the theory of talent transfer. It shows that a relatively late specialization in a specific sport is possible if specific requirements (e.g., muscle strength) are met (Bullock et al., 2009).

The idea of talent transfer might be readily applied to the working context. Rappaport, Bancroft, and Okum (2003) suggested that major talent shortages force organizations to apply more creative talent recruitment strategies. This implies that talent needs to be searched for amongst uncommon target groups, for instance, amongst older workers. In addition, the recruitment process needs to be based on very broad requirement profiles. These profiles only include knowledge, skills, and abilities that are hard to develop and indispensable for the job

in question. By taking these measures, organizations will find more job applicants who have the potential to become excellent performers in a destined job. The theory of talent transfer suggests that their potential can be transformed into excellent performance in a limited amount of time and with limited effort. For instance, an elderly aircraft technician might be able to use a significant amount of his skills in a position as radiation technician in a hospital and might therefore be a good applicant (Rappaport et al., 2003).

Implications of Different Talent Definitions for Talent Management Practice

The understanding of talent as rather innate, rather acquired, or as the result of nature-nurture interactions holds important implications for the application of talent management in practice. It influences, for instance, whether talent management should focus more on the identification/selection or the development of talent (cf. selection and development perspectives, McCall, 1998). Within this section, we therefore aim to provide talent management practitioners with practical guidelines as to where their organizations' definition of talent might be positioned on the innate-acquired continuum. Furthermore, we discuss implications for talent management practice. We structure the implications according to the four aspects of talent management proposed by Dries and Pepermans (2008): identification of talent, training and development, succession planning, and retention management. Based on the work of other authors (Stahl et al., 2012), we added recruitment as a fifth aspect of talent management.

Determining an Organization's Position on the Innate-Acquired Continuum

As there is sufficient evidence supporting any position on the innate-acquired continuum, we do not presume to offer advice about the one best position on it. We do, however, think that an organization can position itself based on the type of talent that is needed, prior experiences, the labor market supply of talent, labor market regulations, and certain strategic considerations. To this end, a first step would be to answer important

questions such as: *What kind of talent do we need in this organization? Do we, for instance, depend more on leadership or technical talent*? *Which critical positions do we want to fill with talented individuals? How scarce is the talent supply in the labor market? How easily can employees be laid off?* Finding answers to these questions might help experienced HRM practitioners to determine whether the needed talent can be developed with a limited amount of effort, or whether the development process would be rather complex and expensive.

More specifically, organizations might take into consideration whether they have a greater need for leadership or technical/expert talent. When talent management is mainly aimed at leadership talent, finding a position on the continuum might come down to the following philosophical question: Are leaders born, or are they made? When talent management is mainly directed at technical experts, a position on the rather acquired side of the continuum might be suggested, as technical positions require a great deal of specialized knowledge and skills that can be developed (Wanzel, Matsumoto, Hamstra, & Anastakis, 2002). However, an understanding of and an affinity for mathematics might be a prerequisite for the development of technical skills. In certain situations, organizations also find it troublesome to forecast future talent needs, especially when an organization operates in a highly dynamic context or when the organization is in its startup phase. In those cases, meta-competencies such as intelligence and learning agility, which influence the adaptability and flexibility of employees, might be central to talent management (Dries, Vantilborgh, & Pepermans, 2012). Moreover, in contexts where labor legislation hinders the suspension of staff members, organizations might embrace the notion that talent can be developed and pursue the strategy of bringing out the best in all employees. Then again, if the talent supply in the labor market is extremely scarce, organizations might consider possibilities that have been discussed in the context of nature-nurture interactions, such as transferring talent from one domain to another (Rappaport et al., 2003).

Once a position on the innate-acquired continuum has been determined based on the type of talent that is needed, implications for talent management can be derived as described in the following paragraphs. In general, we propose that the innate talent assumption implies talent management with a strong focus on the identification and retention of talent, whereas the acquired talent assumption implies a strong focus on the development of talent. Furthermore, the interaction perspective implies that only those with innate talent are developed in the context of talent management.

Talent Management Based on the Assumption that Talent is Mostly Innate

The notion of innate talent is related to the 'war for talent' proclaimed by McKinsey consultants (Michaels, Handfield-Jones, & Axelrod, 2001, p. 1). The idea that talent is worth fighting for is based on the assumption that true talent cannot be developed and is therefore rare. Rare resources like talent are necessarily unequally distributed amongst the members of a population. In other words, some people (the minority) have talent while others (the majority) do not. Snell, Youndt, and Wright argued that "if the types and levels of skills are not equally distributed, such that some firms can acquire the talent they need and others cannot, then (ceteris paribus) that form of human capital can be a source of sustained competitive advantage" (1996, p. 65). Similarly, the resource-based view (RBV) of firms holds that organizations can derive competitive advantage from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991), and all of those criteria apply to innate talent.

These arguments taken together make a strong case for implementing a talent management system with an explicit focus on finding and attracting the best possible individuals and creating durable ties between those individuals and organizations. Therefore, the talent management elements of recruitment, identification, and retention are of particular importance when talent is believed to be innate. In addition, a strong employer brand should

be created to improve an organization's reputation as an employer and to attract sufficient amounts of qualified job applicants.

While both recruitment and identification refer to the process of finding talent, recruitment entails identifying and hiring talented external job applicants, whereas identification involves detecting talent among internal candidates (current members of the workforce). When talent is believed to be innate, both processes build on the assumption that some indications of talent must be observable and hence measurable as early as during childhood. Consequently, they are naturally distinct and visible at the time a person enters the job market. Therefore, talent management should arrange for a profound and elaborate talent recruitment and identification procedure that meets the following requirements (Mönks & Katzko, 2005): it is grounded in a theoretical model of talent (e.g., the WICS Model of Giftedness, Sternberg, 2005), it uses valid diagnostic instruments with high methodological standards (e.g., the Wechsler Adult Intelligence Scale-IV to measure intelligence; Wechsler, 2008), and it carefully deals with social preconceptions regarding, for example, women and minorities. An example for the latter point is the common assumption that women are inferior to men in mathematics, informatics, natural sciences, and technical sciences, even though research is not supportive of this claim (Mönks & Katzko, 2005). Not following such false social preconceptions is particularly important against the background of an increasing shortage of skilled workers because it requires job applicants from highly diverse labor pools in terms of gender, race, and nationality to be considered (Ng & Burke, 2005).

Aside from meeting the three requirements mentioned previously, talent identification and recruitment procedures benefit from taking intelligence into account. Organizations that assess intelligence in the context of talent identification act in line with evidence-based management, which has strongly been promoted by Pfeffer and Sutton (2006). Evidence-based management means that decisions in organizations "should be based on the latest and

best knowledge of what actually works" (Pfeffer & Sutton, 2006, p. 63). Following this line of reasoning, intelligence should be assessed as an indicator of talent because a considerable amount of evidence has proven that general intelligence is the most important predictor of future work performance (Schmidt & Hunter, 1998, 2000, 2004).

Furthermore, the notion of innate talent is linked to specific suggestions for dealing with talented employees once they are identified or recruited. As organizations aim to prevent the turnover of talented employees, those suggestions mainly relate to retention management. One basic idea for retention management that has been proposed by several authors is the segmentation of the workforce and the differential treatment of employees (Becker & Huselid, 2006; Boudreau & Ramstad, 2005; Lepak & Snell, 1999). Workforce segmentation can be based on different factors. On the one hand, the HR architecture by Lepak and Snell (1999) differentiates employees according to their degree of uniqueness and strategic value. On the other hand, Becker and Huselid (2006) argued that highly talented employees are only valuable to an organization if they occupy positions that add to the organization's strategic objectives. As some positions in an organization potentially create more value than others, the authors advise a differentiated approach to managing employees according to the strategic importance of their jobs.

Workforce segmentation entails consequences for an employee's employment mode, the mutual employment relationship, and the HR configuration (Lepak & Snell, 1999). Lepak and Snell (1999) offer specific guidelines on how to deal with talented employees, or, in the their own words, highly unique and valuable employees. First, they should be developed internally so that they mainly learn skills and acquire knowledge that cannot be transferred to other organizations. When talent is proposed to be innate, talent development is mainly aimed at conveying job-specific knowledge and easily acquired skills. Second, organizations should create organization-focused employment relationships with their talented employees that

foster mutual investments by offering development opportunities and participation in decision-making processes (Lepak & Snell, 1999). Finally, the authors suggest applying commitment-focused HR systems in which staffing decisions are based on potential rather than on current performance and career development and mentoring programs are in place (Lepak & Snell, 1999). Overall, such initiatives contribute to creating long-term ties between organizations and their employees and thus to increasing retention rates.

Similarly, Becker and Huselid (2006; see also Huselid & Becker, 2011) recommend that organizations make disproportional investments to fill strategic positions with top talent. This implies investing in a well-functioning system for internal job applications, assessment centers to select the best individuals out of internal or external talent pools, and investments in training of the selected candidates. In order to guarantee the retention of these individuals, career opportunities need to be clearly communicated to talented employees. In addition, realistic expectations need to be created in annual performance appraisal meetings. Furthermore, individual performance in strategic positions must be critically assessed so that top-performers can be excessively rewarded, whereas disappointing performers are removed from their functions (Becker & Huselid, 2006).

Talent Management Based on the Assumption that Talent Can Be Acquired

If talent is procurable through training, talent management will endeavor to systematically grow talent. Holding the perspective that talent can be acquired means agreeing with the statement that "experts are always made, not born" (Ericsson et al., 2007, p. 116). Therefore, talent management systems necessarily underline the importance of HR development and make use of a diverse set of HR practices that aim at expanding employees' knowledge, skills, and abilities. These practices include management skills training, challenging assignments, the provision of early leadership experiences, job rotations, coaching, and mentoring (cf. Dries & Pepermans, 2008). The main difference between talent

management under the assumptions of acquired talent versus innate talent is the greater inclusiveness of the former approach. If talent is not based on innate factors, then potentially more people—or at the upper extremity, all people—can become talented.

For that reason, talent management in this context puts considerably less emphasis on talent identification and recruitment. Nonetheless, certain criteria influence the recruitment of new employees when vacant positions have to be filled. On the one hand, there are applicants who are in more advanced development stages than others because they have had the opportunity to develop relevant knowledge, skills, and abilities in the past. Such opportunities might include an applicant's education or other relevant prior experiences such as holding specific positions, living abroad, or managing certain projects. On the other hand, identification can be based on certain criteria that are indicative of one's ability to learn from experience, for instance, being curious about how things work, being adventurous, being biased towards action, and having an inclination to seek and use feedback (McCall, 1994).

Once employees are hired, talent management will emphasize their training and development. In some organizations, training and development initiatives might solely focus on particular employees. An organization that mainly depends on the performance of its technical experts, for example, can choose to extensively train all employees holding a degree in engineering, while providing only a standard package of trainings to other employees. In other organizations, training and development might be offered to all employees. The rationale for such an inclusive talent management system is that every member of an organization's workforce can potentially become a highly performing, highly valuable employee if the right kind of experiences or the right kinds of learning opportunities are offered. Furthermore, advocates of inclusive talent management approaches argue that it should be the declared task of talent management to bring out the best in all employees. This can be accomplished by identifying the things specific employees are drawn to and by

placing them in positions where they are challenged to unfold their potential (Buckingham, 2005; Buckingham & Vosburgh, 2001; Yost & Chang, 2009). In this regard, talent identification is not concerned with finding the few employees within an organization that are talented. On the contrary, it rather seeks to bring to light everyone's strengths or strength constellations so that they can be matched to adequate positions, tasks, and challenges (Buckingham, 2005; Yost & Chang, 2009). Yost and Chang (2009) specify that talent management initiatives often fall short of capitalizing on the value of all employees because they solely focus on those workers who display leadership potential. According to the authors, it is advisable to include all employees in talent management initiatives. This can be achieved by emphasizing the fit between a person and a job as one necessary condition for talent to emerge and by making use of stretch assignments, mentoring, coaching, networking, development plans, feedback, and reflection (Yost & Chang, 2009). These initiatives eventually teach employees to develop themselves.

Literature on the Pygmalion effect suggests that considering the whole workforce as talented, as suggested by Yost and Chang (2009), entails positive outcomes in terms of learning success. The Pygmalion effect assumes that one person's expectations of another are often fulfilled (Rosenthal, 2002). Meta-analytic findings support this assumption by showing that managers' positive expectations of subordinates enhance their subsequent performance (Kierein & Gold, 2000). For that reason, organizations that consider all of their employees talented might observe greater positive developments in their workforce after investing in training activities. In addition, the negative Pygmalion effect, or Golem effect, suggests that negative leader expectations lower subsequent subordinate performance (Oz & Eden, 1994). Therefore, these organizations also avoid performance losses of employees who have not been identified as having talent (for an in-depth discussion about perceived justice of talent management that differentiates between talented and untalented employees, see also Gelens,

Dries, Hofmans, & Pepermans, this issue). Consequently, talent management should aim at establishing an organizational climate/culture where abilities are appreciated, where high expectations are created, and where success is anticipated.

Furthermore, training outcomes can be enhanced by optimizing factors such as the quality of the training or learning experience, the learning environment, and the transfer of training. To this end, the literature on learning from experience (McCall, 1998, 2010) and deliberate practice (Ericsson et al., 2009) can be consulted. The significance of learning from experience has particularly been stressed in the context of leadership development (McCall, 1998, 2010). McCall clearly stated that he considers experience the primary source of leadership talent, and hence weakens the merits of genetics, training programs, and business schools for creating great leaders. Following McCall's (2010) line of thought, talent management should focus on experience-based development with on-the job learning as one of the driving forces of the development process. Moreover, the effects of experience-based learning are said to be greater when the experience is sufficiently challenging, when it is provided in the beginning of an employee's career, and when an employee is confronted with adverse conditions (McCall, 2010). Other experiences that are particularly beneficial to successful managers' development are short-term assignments, major line assignments, and either very good or very bad supervisors. According to McCall (2010), improving opportunities for experienced-based learning is inexpensive and efficient, as it does not require additional human resource development processes and programs to be implemented. The only prerequisite is that higher-level executives are committed to providing learning experiences, know which situations and assignments are valuable, and understand the lessons they can teach to whom (McCall, 2010).

Practical guidelines as to how training and development can be designed can also be derived from literature on deliberate practice (Ericsson et al., 1993). Within this literature, it

has often been stated that developing expert performance is a time-consuming and complex process requiring an average of 10,000 hours of deliberate practice (Ericsson, 2009). Nonetheless, it has been shown that deliberate practice is an extremely effective learning tool (e.g., Keith & Ericsson, 2007). In order to benefit from deliberate practice, a training or any another learning experience should be designed in the following way: First, the learning experience should allow for trial-and-error learning and repeated execution of the same task. Second, it should be carried out in safe learning environments. Third, it should provide the learner with immediate, high-quality feedback about his or her performance. Fourth, it should be directed at those tasks that an individual cannot yet master (Day, 2010; Ericsson et al., 2009; Ericsson et al., 2007). It has been claimed that even attributes that are believed to be rare and innate, such as charisma, can be developed by using deliberate practice (Ericsson et al., 2007). However, deliberate practice is an activity that is not inherently enjoyable (Ericsson et al., 1993); therefore, employees need to be motivated to engage in it. One possible way to motivate employees to engage in deliberate practice has been described in the literature on passion. Passion has been defined as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 756). Harmonious passion implies that an individual willingly chooses to pursue an activity and that this activity can be combined with other important aspects in life (Vallerand et al., 2003). Research has shown that engagement in deliberate practice is higher when individuals have a harmonious passion for particular tasks (Vallerand et al., 2007). Therefore, managers can motivate their employees to engage in deliberate practice by increasing their harmonious passion for their jobs. This can be achieved by giving individuals tasks that they value and by providing a context in which the basic human needs of competence, autonomy, and relatedness are promoted (Vallerand & Houlfort, 2003). In

particular, the work context should allow for interactions between employees, for effective functioning, and for some leeway to determine one's own course of action.

To ensure that the learning and development opportunities that an organization offers to its employees provide optimal benefits, organizations should also implement an elaborate evaluation procedure and take measures to increase the transfer of training. Strong evaluation systems that embrace at least the second level of training evaluation proposed by Kirkpatrick (1979)—the level of individual learning—should be in place. Evaluation on the level of behavior and results would be even better. As those evaluations often imply that objective measurements take place before and after a training, that effects are compared with a control group, and that results are analyzed statistically (Kirkpatrick, 1979), training and development managers will benefit from collaborating with a statistician on such a task. In addition, the transfer of training can be enhanced by factors such as carrying out an adequate needs analysis, setting specific learning goals, developing trainings with relevant contents that stimulate behavioral practice and feedback, and providing technological support in the form of, for instance, e-coaching (Burke & Hutchins, 2007).

Finally, after having invested considerable resources in workforce development, organizations can try to optimally use their well-trained employees. CV databases of all employees can provide a good overview of the learning experiences that each worker has had and can therefore be a valuable tool for succession planning. HR managers can use the CV database to find out which employees have had the necessary experiences to take on a more challenging organizational role. In addition, job interviews or assessment centers can be used to test whether the required skills and competencies have been developed yet. Finally, some attention should also be paid to creating durable ties between organizations and those employees who have gained expertise due to training investments. However, according to the

nurture approach, leaving employees can also be replaced by employees who had similar learning experiences in other contexts, which have been provided by other employers.

Talent Management Based on the Assumption that Talent Results from Nature-Nurture Interactions

When assuming that talent is the product of the interplay between genetic and environmental factors, talent managers can partly build on the implications for talent management mentioned above. Beyond, several practical implications are particularly relevant for the interaction perspective. The first implication concerns the recruitment of talented employees and draws from the literature on talent transfer (Bullock et al., 2009). Research on talent transfer has shown that talent in one domain can be transferred to other domains in a relatively short amount of time with limited efforts, but on the condition that the two domains build on similar underlying, innate talents. Talent transfer is of particular importance in light of the lasting shortage of skilled workers. Organizations already reacted to this issue by starting to tap new labor pools and to recruit new groups of workers such as women, ethnic minorities, and elderly people that were previously seen as rather undesirable (Henkens, Remery, & Schippers, 2008). However, talent transfer provides arguments for implementing an even broader and more creative recruitment strategy (Rappaport et al., 2003). More specifically, recruiters can target individuals that are successful in any domains or working contexts. The only condition is that these individuals display specific features that are necessary for the position in question. Having those features as a foundation, applicants can become very successful in their destined organizational roles if they get trained accordingly.

In order to gain more knowledge about the nature of those basic or innate features and, more importantly, about the identification thereof, the literature on potential can be consulted. Potential is defined as a latent factor that has yet to be realized (Altman, 1997; Yost & Chang,

2009). The same applies to the innate talent features that have to be identified for successful talent transfer. Consequently, the assessment of potential or latent talent involves exploring a promise that has not been fulfilled yet and is thus rather complicated. Organizations often meet this problem by assessing potential based on performance appraisals (Pepermans, Vloeberghs, & Perkisas, 2003). However, this has been argued to be misleading because past performance cannot always predict future performance in different contexts (Silzer & Church, 2009a). Current performance might simply be a sign of great experience with a certain task and might therefore be unrelated to performance on different, more challenging tasks. Silzer and Church (2009a) provide talent management practitioners with several alternative suggestions to optimize the assessment of potential. First, the authors draw the readers' attention to the importance of the question, "The potential for what?" which calls for a differentiated potential assessment that is attuned to the destined organizational role. Furthermore, Silzer and Church (2009a) have developed a differentiated model in which they describe three dimensions of potential varying in stability over time. The first dimension is called foundational and includes rather stable and difficult to develop factors like personality and IQ. The second dimension includes factors that predict future learning and development such as adaptability, learning orientation, and motivation or drive. This dimension has been referred to as the growth dimension and its factors are also rather stable. The last dimension of potential is the career dimension, which includes those factors that can be developed over time, such as technical and functional knowledge and the ability to manage employees (Silzer & Church, 2009a). Very often, desired end-state competencies such as leadership skills can easily be developed if early indicators such as the proficiency to supervise small teams are present, or if an employee disposes of strong growth factors such as the motivation to perform well in a particular domain.

The three dimensions hold the following implications for talent management: First, talent identification should focus on factors belonging to the foundational and growth dimensions as indicators of potential. To this end, it can make use of assessments of intelligence, personality, and growth related factors, such as learning agility (Spreitzer et al., 1997). Second, once potential has been identified, development and training activities should concentrate on growing the factors that belong to the career dimension. The development of those factors can be facilitated by making use of deliberate practice and experience-based development as mentioned in the former paragraph. Moreover, many practical guidelines regarding employee training and development can be derived from the DMGT (Gagné, 2004) and the revised DMGT 2.0 (Gagné, 2010). Both models distinguish between exceptional abilities with strong biological roots (gifts) and acquired exceptional knowledge and skills (talents). Moreover, they offer profound theoretical insights into the developmental process, through which early, innate abilities are transformed into adult forms of talent. The developmental process is facilitated by two categories of catalysts: intrapersonal catalysts such as physical or mental traits and processes of self- or goal-management, and environmental catalysts such as other individuals, the environment, or the provision of special training opportunities (Gagné, 2004, 2010).

In the revised DMGT 2.0, Gagné (2010) placed special emphasis on the intrapersonal catalyst motivation. According to the author, motivation is paramount for talent development because the developmental process requires the systematic, effortful, and continuous pursuit of an excellence goal (Gagné, 2010). Such a lengthy and effortful process is more likely to be maintained, and hence, to result in the desired outcomes if an individual is motivated. Since motivation's importance for talent development has also been acknowledged by other researchers (e.g., Rea, 2000), talent management should apply motivation-enhancing practices. It is out of the scope of this article to provide the reader with

a review of theories on motivation. However, much is known about how to enhance the motivation of workers from theories such as self-determination theory (Deci & Ryan, 1985), expectancy theory (Vroom, 1964), and goal-setting theory (Locke & Latham, 1990). For more profound reviews on this topic, we refer the reader to the work of Locke and Latham (2004) and Latham and Pinder (2005).

The second catalyst of talent development mentioned in the DMGT (Gagné, 2004, 2010) is the environment or the context in which talent development takes place. Since talent cannot be disconnected from its context (Biswas-Diener et al., 2011) and since a specific context might influence different people in different ways (Papierno et al., 2005), talent management should be dynamic and adaptable to either the context or the individual. More specifically, three courses of action appear advisable. First, generally speaking, talent management should aim to create an organizational context that facilitates talent development and prevents innate talent from being wasted. Talent management initiatives should target those individuals who promise to benefit the most from them. They can be found through a thorough talent identification procedure as described earlier. Second, talent management initiatives must differ across positions, organizational levels, or organizational branches, as different forms of talent might be needed and should hence be developed in different occupational roles. Third, talent management should not only focus on developing talents to their maximum. A vital part of talent management should focus on teaching employees when and when not to rely on their talents and how to dose the use of a talent to make it match the situation (Biswas-Diener et al., 2011; McCall, 2009).

Future Research

This review, together with the other reviews included in this special issue, represents one of the first attempts to address the definition of talent within talent management. From a theoretical point of view, a necessary next step would be to develop talent management

models or frameworks that integrate different talent definitions and formulate propositions about their effects on a variety of outcomes (see also Dries, this issue; Gelens et al., this issue). Much more theoretical work is needed in this regard to build up a sound theoretical basis for the academic field of talent management.

For the purpose of gaining insights into the talent definitions that are currently used by organizations engaged in talent management, discourse analyses should be conducted. They can be used to analyze official organizational policies or statements of talent managers with regard to the inherent perspective on talent. Furthermore, comparative case analyses can be done to compare talent definitions and talent management systems in different organizations. Cross-cultural or cross-sector comparisons would be of particular interest since perspectives on talent might be influenced by cultural variables and features of for-profit or not for-profit organizations (see also Thunnissen, Boselie, & Fruytier, this issue).

An important next step would then be to compare the effects of different talent definitions on outcome variables such as employee satisfaction, engagement and commitment, and individual and organizational performance. To this end, multi-level research designs should be used that allow an investigation of the relationship between talent management as intended on the organizational level, as implemented on the departmental or team-level by line-managers, and as perceived by employees. An investigation of the respective effects on individual- and organizational-level variables should be included.

Conclusion

This paper belongs to a special issue on talent management, which pursues the overall aim of creating a sound theoretical basis for this growing research field. Such a theoretical basis is needed because talent management has been criticized for its lack of focus (Lewis & Heckman, 2006) and for being just another management approach that does not offer added value above and beyond the well-established literature on HRM (Iles et al., 2010). It has

therefore been put into question whether talent management is a distinct concept that requires scientific investigations or whether one can gain sufficient knowledge about talent management by studying the available literature on HRM and development alone. The theoretical papers that have been combined in this special issue make an attempt to legitimate the existence of talent management as an independent research stream.

The present paper contributes to this overall aim by providing an in-depth theoretical review on the nature of talent and by connecting the findings about talent with organizational talent management. It has been shown that there are different ways of defining talent, which in turn each entail different consequences for talent management practices. Defining talent as rather innate goes together with talent management practices that are mainly directed at talent recruitment, identification, and retention, whereas defining talent as acquired necessitates talent management practices that are strongly focused on talent development. Finally, when defining talent as the product of nature-nurture interactions, talent identification benefits from the assessment of factors that reflect the ability to learn—and specifically, the ability to learn the things that are important for a job task—whereas talent development can further be enhanced by influencing personal and environmental catalysts.

This paper shows that talent management makes use of several practices that are commonly associated with HRM, and that talent management and HRM are indeed related to one another. The difference between both terms can, however, be explained through the difference in the terms “human resource” and “talent.” The term human resource is rather generic and neither provides us with information about the receiver nor about the content of an HR practice. The term talent, by contrast, can potentially offer us insights about employees who receive certain HR practices and about the specific nature and shape of an HR practice. In other words, talent management can be seen as a scientific discipline that falls under the umbrella term HRM, covering one specific niche of it. Depending on the

definition of talent, talent management is directed at certain human resources only, makes use of certain HR practices, and shapes these practices in a prescribed way.

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Table 1.

Summary of Important Approaches to Talent and Their Main Characteristics

	Approach to talent				
	Giftedness	Strengths	(Meta-) Competencies	Potential	Performance
Science domain	Education	Positive Psychology	HRM	HRM	HRM
Seminal authors	Ericsson, K.A. Gagné, F. Galton, F., Sir Renzulli, J. Sternberg, R.J. Terman, L.	Biswas-Diener, R. Buckingham, M. Kashdan, T.B. Peterson, C. Seligman, M.E.P.	Boyatzis, R.E. Briscoe, J.P. Eichinger, R. W. Hall, D.T Lombardo, M. M. Mahoney, J. D. Spreitzer, G. M.,	Church, A.H. Silzer, R. McCall, M. W	Altman, Y. Welch, J. Grote, D.
Population of interest	Children, adolescents , adults	Children, adolescents, adults	Working adults	Working adults (mostly younger workers)	Working adults
Position in nature-nurture debate	Ongoing debate about nature vs. nurture; several approaches highlighting nature-nurture interactions	Innate basis, yet to some extent developable	Knowledge and skills can be developed; abilities and some other personal characteristics are innate	Mainly based on innate factors, but can (and needs to be) developed	
Position in inclusive-exclusive debate	(Highly) exclusive (approximately from 1-10 percent of the population)	Inclusive	As concerns knowledge and skills: rather inclusive; as concerns abilities: rather exclusive	(Rather) exclusive	Exclusive

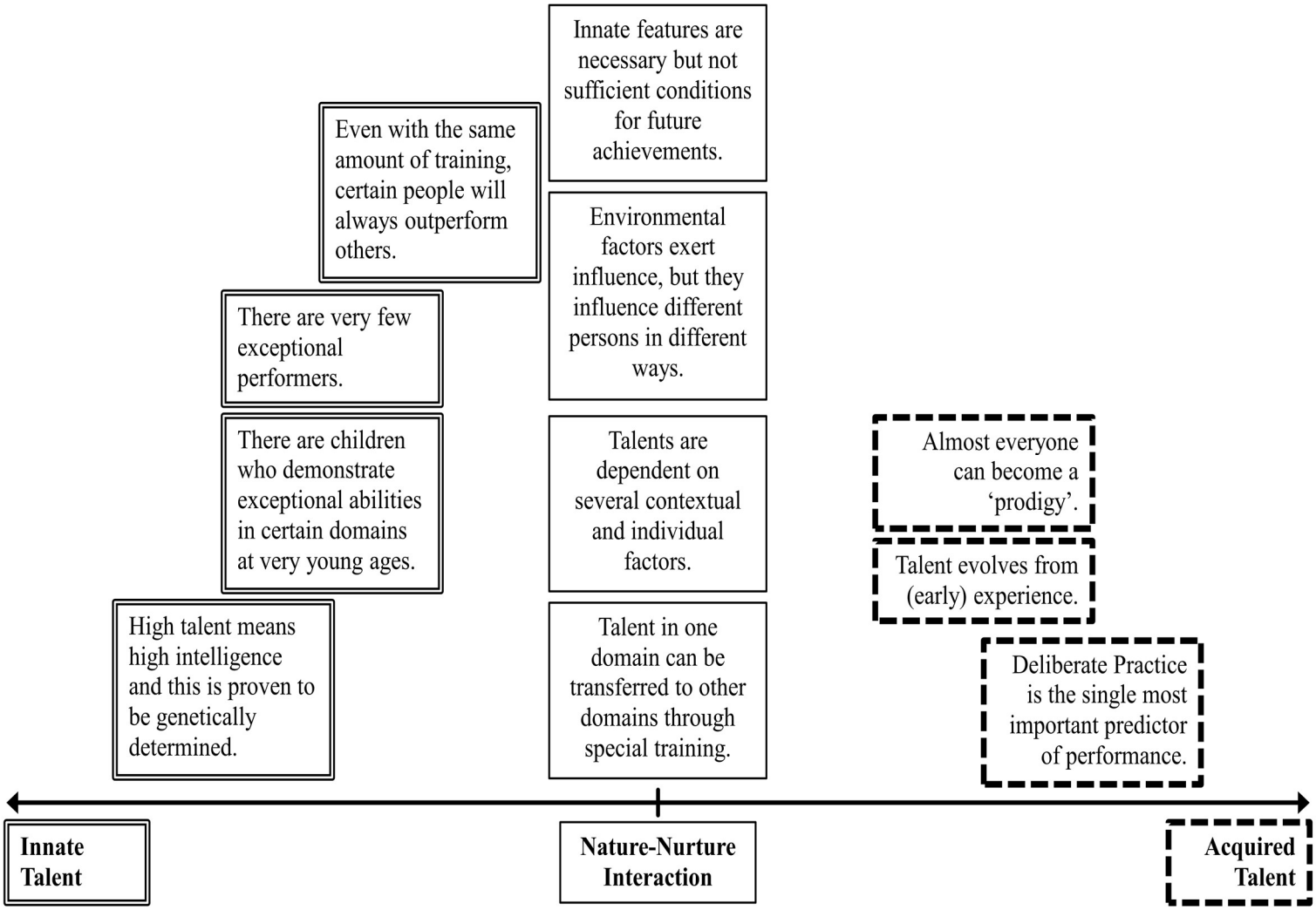

Figure 1. Common arguments regarding talent mapped on the innate-acquired continuum.

Figure 2. Drawing of horse and rider by Nadia at age 5 (Reprinted from Selfe, 1977).